

U. S. Appln. No. 09/992,416

Amendment dated November 20, 2003

Reply to Office Action dated August 25, 2003

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REMARKS

This paper is a timely response to the non-final Office Action of August 25, 2003..

Amendments

In the specification, the paragraph at page 5, line 31, to page 6, line 25 has been amended to clarify the description of the device depicted in Fig. 2A. The addition of the following text to the specification: "wherein the first doped region 28 and the second doped region 30 are both heavily doped regions N+ in the present invention, as shown in Fig. 2A," is supported by Fig. 2A and at page 6, lines 26 - 32. Therefore, the Applicants submit that this amendment does not add new matter to the application and may be properly entered.

Claims 1 and 12 have been amended to recite, in part, "wherein at least one of the isolated islands is completely surrounded by the first doped region." This amendment is supported in the specification by Figs. 2A, 2B and 3 and the related text in the description. Claims 19 and 20 have been added to the application. New Claims 19 and 20 are supported in the specification by Fig. 2A and at page 6, lines 26 - 32. Therefore, the Applicants submit that these amendments do not add new matter to the application and may be properly entered.

Claim Rejection - 35 U.S.C. 103(a)

In section 2 of the Office Action, the Examiner rejects Claims 1-3, 7-12 and 14-18 under U.S.C 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of US Patent 5,623,387 to Li et al. The Examiner admits that AAPA does not teach "a plurality of isolated islands in the first doped region so that the resistance of the first doped region is increased." However, the Examiner asserts that the Li et al. teach isolated islands (1011) distributed in the doped region 305 to increase the resistance of the doped region 305. The Examiner then concludes that it would have been obvious to incorporate the teaching of Li et al. into the device taught by AAPA.

The Applicants first submit that the Examiner has not shown a motivation to combine the AAPA with the teachings of Li in the manner done by the Examiner. Li et al. disclose that the field

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oxide regions 1011 cited by the Examiner are used to separate segments of a split bipolar transistor. See col. 17, ll. 7-8. Li et al. describe that the split bipolar transistor is formed as a plurality of adjacent collector regions separated by a base region from a plurality of adjacent emitter regions. See col. 6, ll. 18 - 20. Therefore, Li et al. basically disclose a transistor comprises a plurality of transistor-like segments S1, S2 that are separated by field oxide regions 1011. See Fig. 10A. The current hogging referred to by Li et al. at col. 17, ll. 8-10, actually refers to the current flow through any one of the transistor-like segments and the protection of that segment from destruction by high current flow. See Li et al., col. 4, ll. 33-44.

On the other hand, the AAPA discloses a structure that comprises a lateral semiconductor control rectifier (LSCR) and a MOS transistor. See page 1, ll. 20 - 23, of the present application. Essentially, the circuit depicted in Fig. 1 is used to protect core circuits from ESD by the operation of the LSCR and MOS transistor. See page 2, ll. 6-11. Most importantly, there is no discussion in the AAPA of using segmented transistors. Therefore, the Applicants submit that one skilled in the art would not be motivated to combine the teachings of the AAPA with the teachings of Li. The Applicants submit that the Examiner has relied upon impermissible hindsight to combine the teachings. Therefore, the Applicants submit that the Examiner has not established a *prima facie* case of obviousness based on the cited references and respectfully request the withdrawal of the rejection of the claims on this grounds.

Further, the Applicants submit that the combination cited by the Examiner does not teach, disclose, or suggest each and every element as set forth in independent Claims 1 and 12, as amended. As discussed above, the field oxide regions 1011 cited by the Examiner are used to separate segments of the segmented bipolar transistor. See Figs. 10C and 10E and col. 16, ll. 64 - 66. Therefore, the Applicant submits that, at best, the combined teachings of the AAPA and the portion of Li et al. cited by the Examiner teach a plurality of field oxide regions that separate a plurality of collector and/or emitter regions. The Applicant further submits that the portion of Li et al. cited by the Examiner combined with AAPA does not teach the use of any field oxide regions between the collector and emitter regions of an individual transistor segment.

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On the other hand, Claim 1 recites "a first doped region . . . formed between the well region and the gate structure, immediately adjacent to the first side of the gate structure in the semiconductor structure . . . and a plurality of isolated islands distributed in the first doped region." (Underlining added for emphasis). The Applicant submits that the combination of the portion of Li et al. cited by the Examiner and the AAPA does not teach disclose or suggest "a plurality of isolated islands" in a first doped region that is "formed between the well region and the gate structure" as set forth in Claim 1 and similarly set forth in Claim 12.

Further, the Applicant notes that Li et al. distinguish between doped areas 1012a and 1012b, where "the combination of field oxide region 1011 and lightly doped area 1012b provides junctions between N+ and N- regions." See col. 17, ll. 11-13, and Fig. 10D. Therefore, the Applicants submit that Li et al. disclose that the field oxide region has, at least, a first doped region on one side and a second doped region on another side. On the other hand, Claims 1 and 12, as amended, recite "wherein at least one of the isolated islands is completely surrounded by the first doped region." (Underlining added for emphasis). The Applicants submit that the cited combination does not teach, disclose, or suggest this limitation.

Therefore, the Applicants submit that the Examiner has not established a *prima facie* case of obviousness based on Li et al. and the AAPA, since it has not been shown that the cited combination teaches each and every element as set forth in Claims 1 and 12, as amended. Therefore, the Applicants respectfully request that the Examiner withdraw the rejections of Claims 1 and 12, as amended. Since Claims 2-3, 7-11 and 19 depend from Claim 1 and Claims 14 - 18 and 20 depend from Claim 12, the Applicants submit that the rejection of these claims should also be withdrawn at least based upon their dependency.

The Applicants respectfully submit that the Examiner has not shown that Claims 1-3, 7-12 and 14-18 of the present application are made obvious by the cited references. In view of the above, reconsideration and allowance of the pending claims, as amended and added, are respectfully solicited.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed,

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the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office at facsimile number 703-872-9318 and addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

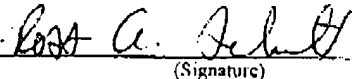
Respectfully submitted,

November 20, 2003

(Date of Transmission)

Ross A. Schmitt

(Name of Person Transmitting)



(Signature)

11-20-2003

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